Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. (Currently Amended) A transmitter for an asymmetric digital subscriber line (ADSL) modem configured to ~~that can~~ be coupled to a receiver over a local loop, comprising:

a pseudo-random bit sequence generator that outputs an output pseudo-random bit sequence (PRBS); and

a Medley signal generator that receives the output PRBS and generates a Medley signal based on the output PRBS;

wherein said pseudo-random bit sequence generator operates in a parameter selection mode, and includes a controller coupled to a bit sequence module; said controller passing selected parameter data to said bit sequence module, and said selected parameter data including at least one of a selected initial state and selected polynomial that defines processing of bits in said bit sequence module to generate the output pseudo-random bit sequence,

and wherein said bit sequence module includes a series of unit delay elements having values, and the values are set based on selected initial state parameter data.

2. (Original) The transmitter of claim 1, wherein the ADSL modem includes multiple channels, and said Medley signal generator includes a Medley tone encoder that modulates four-quadrature amplitude modulated (4QAM) symbols based on the received output PRBS to generate a set of tones for the multiple channels.

3. (Canceled)

4. (Canceled)

5. (Currently Amended) The transmitter of claim 1, wherein said bit sequence module includes ~~a series of unit delay elements and~~ a summation unit, and

wherein outputs of at least two of said unit delay elements are coupled to said summation unit according to a selected polynomial, and said summation unit sums the coupled outputs to obtain the output pseudo-random bit sequence.

6. (Previously Presented) The transmitter of claim 1, wherein said controller selects said selected parameter data based on an association with a reasonable peak-to-average (PAR) ratio for a sequence of Medley symbols.

7. (Previously Presented) The transmitter of claim 1, further comprising a memory that stores a table that includes data in associated fields, said fields including Maximum PAR ratio for a sequence of Medley symbols, initial state, and transmit signal parameters of the ADSL modem.

8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled)

13. (Original) The transmitter of claim 1, wherein said transmitter transmits selected parameter data to the receiver.

14. (Currently Amended) A method, comprising:

selecting parameter data based on an association of the selected parameter data with a reasonable peak-to-average (PAR) ratio for a sequence of Medley symbols according to at least one of a number of used tones and a number of upstream and downstream carriers ~~transmit signal parameter~~ of an ADSL modem; and

generating a pseudo-random bit sequence based on the selected parameter data; whereby the pseudo-random bit sequence ~~can be~~ is output to seed generation of a Medley signal in the ADSL modem.

15. (Original) The method of claim 14, wherein said selected parameter data comprises at least one of a selected initial state or a selected polynomial.

16. (Original) The method of claim 14, further comprising transmitting the selected parameter data to a receiver.

17. (Canceled)

18. (Canceled)

19. (Currently Amended) A transmitter for an asymmetric digital subscriber line (ADSL) modem configured to ~~that can~~ be coupled to a receiver over a local loop, comprising:

a pseudo-random bit sequence generator that outputs an output pseudo-random bit sequence (PRBS); and

a Medley signal generator that receives the output PRBS and generates a Medley signal based on the output PRBS;

wherein said pseudo-random bit sequence generator has three modes including a parameter selection mode, a scramble mode, and a combination mode, and wherein said pseudo-random bit sequence generator is configured to operate at a given time in any one of the three modes.

20. (Previously Presented) The transmitter of claim 19, wherein the ADSL modem includes multiple channels, and said Medley signal generator includes a Medley tone encoder that modulates four-quadrature amplitude modulated (4QAM) symbols based on the received output PRBS to generate a set of tones for the multiple channels.

21. (Previously Presented) The transmitter of claim 19, wherein said pseudo-random bit sequence generator operates in the scramble mode, and includes a scrambler that receives an input periodic bit sequence and scrambles the input periodic bit sequence to obtain the output pseudo-random bit sequence.

22. (Previously Presented) The transmitter of claim 21, wherein said scrambler comprises an ITU G.992.3 Medley scrambler.

23. (Previously Presented) The transmitter of claim 21, wherein said input periodic bit sequence comprises bits output by an ITU G.992.1 PRBS generator.

24. (Previously Presented) The transmitter of claim 21, wherein said scrambler comprises a series of unit delay elements having values according to an initial state and first and second summation units, wherein outputs of at least two of said unit delay elements are coupled to said second summation unit according to an initial polynomial, and said second summation unit sums the coupled outputs and outputs a first sum signal to said first summation unit which performs a sum of the first sum and the input periodic bit sequence to obtain the output pseudo-random bit sequence.

25. (Previously Presented) The transmitter of claim 19, wherein said pseudo-random bit sequence generator operates in the combination mode, and includes a controller coupled to a bit sequence module and a scrambler; wherein said controller selects either of the bit sequence module and the scrambler.

26. (Currently Amended) A transmitter for an asymmetric digital subscriber line (ADSL) modem configured to ~~that can~~ be coupled to a receiver over a local loop, comprising:

a pseudo-random bit sequence generator that outputs an output pseudo-random bit sequence (PRBS); and

a Medley signal generator that receives the output PRBS and generates a Medley signal based on the output PRBS;

wherein said pseudo-random bit sequence generator operates in a scramble mode, and includes a scrambler that receives an input periodic bit sequence and scrambles the input periodic bit sequence to obtain the output pseudo-random bit sequence, wherein said scrambler comprises an ITU G.992.3 Medley scrambler.

27. (Previously Presented) The transmitter of claim 26, wherein said input periodic bit sequence comprises bits output by an ITU G.992.1 PRBS generator.

28. (Currently Amended) A transmitter for an asymmetric digital subscriber line (ADSL) modem configured to ~~that can~~ be coupled to a receiver over a local loop, comprising:

a pseudo-random bit sequence generator that outputs an output pseudo-random bit sequence (PRBS); and

a Medley signal generator that receives the output PRBS and generates a Medley signal based on the output PRBS;

wherein said pseudo-random bit sequence generator operates in a scramble mode, and includes a scrambler that receives an input periodic bit sequence and scrambles the input periodic bit sequence to obtain the output pseudo-random bit sequence, wherein said scrambler comprises a series of unit delay elements having values according to an initial state and first and second summation units, wherein outputs of at least two of said

unit delay elements are coupled to said second summation unit according to an initial polynomial, and said second summation unit sums the coupled outputs and outputs a first sum signal to said first summation unit which performs a sum of the first sum and the input periodic bit sequence to obtain the output pseudo-random bit sequence.

29. (Previously Presented) The transmitter of claim 28, wherein said input periodic bit sequence comprises bits output by an ITU G.992.1 PRBS generator.